CLAIMS:

1. A mobile system, comprising:

a storage device;

a vibration sensor arranged to detect whether there is a presence of sustained or sporadic mechanical vibrations over a designated time duration, and to generate therefrom a vibration signal indicating the presence of sustained or sporadic mechanical vibrations; and

a chipset having a storage controller arranged to control accesses to said storage device, including limiting accesses to said storage device to minimize damages to said storage device in response to the vibration signal indicating the presence of sustained or sporadic mechanical vibrations.

2. The mobile system as claimed in claim 1, further comprising:

a position sensor arranged to detect whether there is a change in the position of said mobile system at a fixed or variable velocity or acceleration, and to generate a position signal indicating the change in the position of said mobile system.

3. The mobile system as claimed in claim 2, wherein said storage controller of said chipset further limits accesses to said storage device to minimize damages to said storage device in response to the position signal indicating the change in the position of said mobile system.

4. The mobile system as claimed in claim 3, wherein said storage device corresponds to a hard disk drive.

5. The mobile system as claimed in claim 4, wherein said storage controller contains registers for the following purposes: (1) set timing (delay, burst size) to control frequency of read/write cycles; (2) set burst size to control how much data is transferred during each read/write cycle; and (3) completely block hard disk access (read or write) if the vibration signal indicates the presence of strong sustained vibrations for short periods of time.

6. The mobile system as claimed in claim 4, wherein said storage controller comprises:

control registers arranged to set the parameters for individual transfers (read or write) based on the vibration signal from said vibration sensor or the position signal from said position sensor regardless whether said mobile system is operating in a normal (stationary) mode or a mobile (Navigation) mode, wherein said parameters include a burst size, a transfer count, and a base memory address;

first-in/first-out (FIFO) devices arranged to provide line buffering required for data transfers to said storage device; and

control logic arranged to set up the FIFO threshold level of the FIFO devices and the delay time, via the control registers in order to write/read data to/from said storage device.

7. The mobile system as claimed in claim 6, wherein said control logic initiates writing data to said storage device, waits until the delay time set is completed and the FIFO threshold level is reached before data can be written onto said storage device.

8. The mobile system as claimed in claim 4, wherein said position sensor is implemented with communication devices using Bluetooth™ standards or Global Position System (GPS) standards.

9. The mobile system as claimed in claim 8, wherein said position sensor is used to trigger the mobile system to operate in a Navigation mode when the mobile system is out of position or disconnected from a Bluetooth Access Point, and exit from the Navigation mode when the mobile system is stationary or connected with said Bluetooth Access Point.

10. A computer system, comprising:

a disk drive;

a host processor equipped with an operating system (OS) which enables operation in a normal mode when the computer system is stationary and a Navigation mode when the computer system is mobile;

a vibration sensor arranged to detect whether there is a presence of sustained or sporadic mechanical vibrations over a designated time duration, and to generate therefrom a vibration signal indicating the presence of sustained or sporadic mechanical vibrations;

a position sensor arranged to detect whether there is a change in the position of the computer system at a fixed or variable velocity or acceleration, and to generate a position signal indicating the change in the position of the computer system; and

a chipset equipped with a disk drive control logic arranged to control disk accesses to said disk drive, including controlling disk accesses to said disk drive in order to reduce damages to said disk drive in response to the vibration signal indicating the presence of sustained or sporadic mechanical vibrations or the position signal indicating the change in the position of the computer system.

11. The computer system as claimed in claim 10, further comprising:

a flash memory connected to the chipset, to store a set of system basic input/output start up (BIOS) instructions at startup, and ACPI instructions implemented to provide various power saving functions, manage the progress of power saving between full-on, standby, and sleep mode, and to provide transitions between the normal mode when the computer system is stationary and the Navigation mode when the computer system is mobile from applicable ACPI states.

12. The computer system as claimed in claim 11, wherein said disk drive control logic contains registers for the following purposes: (1) set timing (delay, burst size) to control frequency of read/write cycles; (2) set burst size to control how much data is transferred during

each read/write cycle; and (3) completely block hard disk access (read or write) if the vibration signal indicates the presence of strong sustained vibrations for short periods of time.

13. The computer system as claimed in claim 11, wherein said disk drive control logic comprises:

control registers arranged to set the parameters for individual transfers (read or write) based on the vibration signal from said vibration sensor or the position signal from said position sensor regardless whether said mobile system is operating in a normal (stationary) mode or a mobile (Navigation) mode, wherein said parameters include a burst size, a transfer count, and a base memory address;

first-in/first-out (FIFO) devices arranged to provide line buffering required for data transfers to said disk drive; and

control logic arranged to set up the FIFO threshold level of the FIFO devices and the delay time, via the control registers in order to write/read data to/from said disk drive.

14. The computer system as claimed in claim 13, wherein said control logic initiates writing data to said disk drive, waits until the delay time set is completed and the FIFO threshold level is reached before data can be written onto said disk drive.

15. The computer system as claimed in claim 10, wherein said position sensor is implemented with communication devices using Bluetooth™ standards or Global Position System (GPS) standards.

16. The computer system as claimed in claim 10, wherein said position sensor is used to trigger the mobile system to operate in a Navigation mode when the mobile system is out of position or disconnected from a Bluetooth Access Point, and exit from the Navigation mode when the mobile system is stationary or connected with said Bluetooth Access Point.

17. The computer system as claimed in claim 10, wherein, when the Navigation mode is triggered in response to the vibration signal or the position signal, said disk drive control logic of the chipset changes system settings and configurations for operation in the Navigation mode, and said operating system (OS) then detects the Navigation mode entry and changes OS settings and configurations for operation in the Navigation mode.

18. The computer system as claimed in claim 17, wherein, when there is a break from the Navigation mode, said disk drive control logic of the chipset changes system settings and configuration for operation in the normal stationary mode, and said operating system (OS) then detects the exit from the Navigation mode and changes OS settings and configurations for operation in the normal stationary mode.

19. A method for enabling a mobile PC having an operating system (OS) and a chipset configured to transition between a normal (stationary) mode and a Navigation (mobile) mode, comprising:

receiving an indication from a vibration sensor or a position sensor attached to the chipset, which requests operation in a Navigation (mobile) mode when there is a presence of sustained or sporadic mechanical vibrations over a designated time duration or when there is a change in the position of the mobile PC at a fixed or variable velocity or acceleration;

changing, at the chipset, system settings and configurations for the mobile PC to operate in the Navigation (mobile) mode;

detecting, at the operating system (OS), the Navigation (mobile) mode entry and changing OS settings and configurations for the mobile PC to operate in the Navigation (mobile) mode;

determining whether there is a break from the Navigation (mobile) mode;

changing, at the chipset, system settings and configurations for the mobile PC to operate in back in the normal (stationary) mode, when there is a break from the Navigation (mobile) mode; and

detecting, at the operating system (OS), the Navigation mode exit and changing OS settings and configurations for the mobile PC to operate in the normal (stationary) mode.

20. The method as claimed in claim 19, wherein said system settings and configurations for the mobile PC to operate in the Navigation (mobile) mode include setting

parameters for individual transfers (read or write) based on the indication from said vibration sensor or said position sensor, in which said parameters include a burst size, a transfer count, and a base memory address; and setting up a threshold level of FIFO devices and the delay time in order to initiate writing data to said disk drive, wait until the delay time set is completed and the FIFO threshold level is reached before data is written onto said disk drive.

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